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Hyperbolic Navigation Development at NPT Fortworth NO. OF PAGES 4

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(LISTED BELOW)

DATE OF  
INFO.

SUPPLEMENT TO  
REPORT NO.

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1. In late September 1951 the East German Ministry for Post and Telecommunications ordered [redacted] to open up to start development of a hyperbolic navigation system. This project was given plan number V2-02 and was to be completed in 1952. Chief Engineer Erich Huettmann, under the overall supervision of Development Chief Bernhard Winkelsberg, was put in charge of the project. The 1952 form sheet of the Economic Plan characterizes the project as a "key word (Kennwort) "Hyperbelnavigationsverfahren" as a project which is scheduled to permit position finding for a ship over long distances. The frequency range is from 90 to 100 MHz. The construction elements are: 6,000 DME was provided for on the wave 50,000 DME. Development was to be completed by the fourth quarter 1954.

2. During 1952 many difficulties arose in trying to carry out the project. The work was mainly confined to the study of available literature. The technicians of Funkwerk Koeppenick did not obtain the expected support of the Main Administration for Wireless Telecommunications (IV Funk) in the procurement of material; direction of the development was changed several times. At the end of 1952 the project was reviewed and put under the overall supervision of Wilhelm Grimm, with Guenther Hintze as the responsible director of the project. The form sheet for the 1953 Economic Plan gives the following data:

Theme: Long-distance navigation for position finding

Key word: Weitnavigationsverfahren

Technical characteristics: Instruments are to be used which permit ships and aircraft to determine their positions over distances

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cannot be given at present because  
no [redacted] has yet been made as to  
the [redacted] (CCA) to be used.

## Co-ordination:

Provisional co-ordination with the  
Ministry for Post and Telecommunications.  
Necessity of project has been confirmed.

## Finance Source:

Central Research and Development Funds.

## Costs:

Total costs amount to 450,000 DME,  
including the 1952 share of 50,000 DME.  
In 1953 a total of 156,000 DME is to be  
spent (material costs: 17,300 DME;  
fabrication costs: 96,600 DME; special  
costs such as [redacted] 7,100 DME;  
purchase of [redacted] 35,000 DME).

## Completion Date:

Deferred to fourth quarter 1953.

## 1953 work schedule:

Preparatory work and laboratory develop-  
ment. The Technical-Scientific [redacted]  
accompanying the 1953 [redacted] is:  
[redacted] navigation [redacted] is  
[redacted] obtain [redacted] [redacted]  
[redacted] use for navigation [redacted]  
[redacted] introduction of the [redacted]  
[redacted] in [redacted] many is necessary [redacted]  
[redacted] catch up with foreign national [redacted].

3. During 1953 the project met with new difficulties. It was changed from a development project to a research project. Progress made from January through 30 August 1953 is given in the following extracts of monthly progress reports of Department TEE of Funkwerk Koepenick:

a. January 1953

Fegert (fnu), who had been in charge of the project, left the firm at the end of 1952. His work was not particularly successful. Some ideas which were advanced had to be abandoned because it was impossible to attain the required accuracy of location (Ortungsgenauigkeit) by circumventing DECCA patents with the aid of a frame direction finder [redacted].

[redacted] ped in such a way that measurement of the  
existing DECCA chains would be possible. It  
[redacted] [redacted] whether this could be done. In mid-January, a conference  
was to take place with Dr. Vinzelberg, Jung, Dr. Schuettloeffel,  
Matze and Grimm in order to work out the position of Funkwerk  
Koepenick vis-a-vis the Main Administration for Wireless Telecommuni-  
cations.

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1 This was to permit small craft having no special equipment  
other than a regular communications radio receiver to  
find their position.

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b. February 1953

The status did not change, since no technician in charge (Sachbearbeiter) was available. The conference which was to establish Funkwerk Koepenick's position (see above) did not take place.

c. March 1953

After a conference with the Hydrographic Service (Seehydrographischer Dienst) it was decided to start development of a receiver instrument without taking into consideration existing East German transmitters. This would make it possible to become acquainted with the problems under study and to obtain practical experience. Thus, a functional reconstruction (funktionsmaessiger Nachbau) of the receiver elements of the DECCA systems in existence was to be attempted. The switching diagram (Schaltbild) was to be reconstructed in accordance with the functioning.

d. April 1953

Funkwerk Koepenick requested the Main Administration for Wireless Communications to turn over all available material on the DECCA principle of the way in which an accurate position-finding (Feinortung) works has in the meantime been cleared up to such an extent that Funkwerk Koepenick can consider proceeding with the construction of the wiring (Schaltungsmaessiger Aufbau). However, the principle of the procedure for rough position-finding (Grobortung) had not been cleared up. It was planned to carry out measurements bearing on the DECCA chain [redacted]

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[redacted] Lambrecht (fnu) agreed to study the deometer problem. Department TEE made available to Lambrecht [redacted]

[redacted] which are known. Funkwerk Koe [redacted] near future; however, [redacted] the exact frequencies have been [redacted].

e. July 1953

Hintze, who was in charge of hyperbolic navigation, was on leave. A detailed report was to be made during August 1953. The intermediate frequency amplifier had been built. The receiver for the master transmitter (Muttersender) was being measured. The amplifying part (Verstaerkerteil) had been completed. Work was concentrated on the discrimination [redacted] then permit Funkwerk Koepenick to carry out accurate measurements [redacted]

[redacted] be carried as a research project rather than as a development project. The Technical Projecting [redacted] was to forward an application for this purpose. The Second [redacted] of the project was still engaged in the study of frequency multi- [redacted] (Frequenzvervielfachung) for accurate position finding. In the [redacted] the [redacted] concerning the indication deometer [redacted]

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f. 30 August 1953

The development project for hyperbolic navigation extended into 1954. The provisory initial report had to be checked. The development proposition contained in it was to be put forth as a research proposition for next year. Work was progressing on the sub-order on the development of decometers issued to ZEG. Some types of rotating indicators (Drehmelder) had been investigated for their usability. The degree of accuracy attained was about 20 percent. This value appeared to be usable. However, the great power demand (Leistungsbedarf) of about 10 watts for each of the two deviation coils (Ablenkspulen) of the system continued to be very disadvantageous. Grimm advanced the proposition that possibly finding a less extensive and umfangreicher Aufbau der D.

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Comment. As received. Probably Drehstrom (three-phase alternating current) was meant.

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